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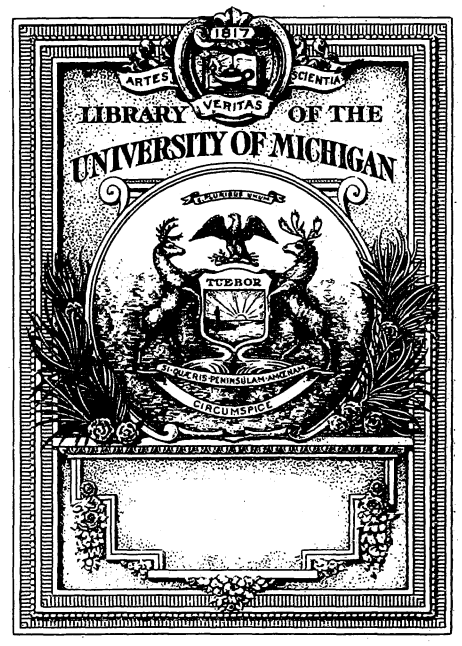
U.S. Dept. Commerce - N.Y. Harbor - Tidal Curret Charts



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UNITED STATES OF AMERICA

TIDAL CURRENT CHARTS

NEW YORK HARBOR

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, Director

SERIAL No. 551

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TIDAL CURRENT CHARTS, NEW YORK HARBOR

SECOND EDITION

These current charts show the direction and velocity of the tidal current for each hour of the tide at New York. They present a comprehensive view of the tidal current movement for the harbor as a whole and also supply a means of readily determining for any time the direction and velocity of the current at various localities throughout the harbor.

The charts, which may be used for any year, are referred to the times of high and low water at New York, daily predictions for which are included in the Atlantic Ocean Tide Tables published annually by the United States Coast and Geodetic Survey.

The directions of the current are indicated by red arrows and the velocities by red figures. The velocities, which are expressed in knots, are for the current at the time of spring tides—that is, near the time of new or full moon—hence the velocities shown are the strongest ordinarily encountered.

Nontidal currents.—These charts depict the flow of the tidal currents under normal weather conditions. Strong winds and freshets, however, bring about nontidal currents which may modify considerably the velocities and directions shown on the charts.

Use of charts.—Twelve charts are given, six being referred to high water and six to low water. The chart to be used for any desired time is determined by obtaining the difference between this time and the time of the nearest preceding high or low water for New York as given in the Atlantic Ocean Tide Tables. The chart with the legend that agrees most nearly with this difference is the one to be used.

Having selected the proper chart, the directions and the spring velocities of the current throughout the harbor are readily obtained by the red arrows and figures on that chart.

The tidal current varies from day to day principally in accordance with the range of the tide, and to obtain the velocities for the particular day the velocities indicated on the charts should be modified by a range factor as follows: Obtain from the tide tables the predicted heights of the high and low waters for the date desired. Subtract the mean of the two low-water heights from the mean of the two high-water heights. With this range enter the following table and obtain the corresponding correction, using column (A) for factors for the East River and Harlem River and column (B) for all other places.

Factors for correcting velocities

Range of tide for day (feet)	(A) Factor for the East and Harlem Rivers	(B) Factor for all other places not included in column (A)
2.4 to 2.9, multiply by	0. 7	0. 5
3.0 to 3.4, multiply by	0. 8	0. 6
3.5 to 3.9, multiply by	0. 8	0. 7
4.0 to 4.5, multiply by	0. 9	0. 8
4.6 to 5.0, multiply by	0. 9	0. 9
5.1 to 5.5, multiply by	1. 0	1. 0
5.6 to 6.0, multiply by	1. 0	1. 1
6.1 to 6.6, multiply by	1. 1	1. 2

Example.—Suppose that the direction and velocity of the current in the Hudson River off the Battery is desired for 6 p. m., on a day when the predictions for New York, as given in the Atlantic Ocean Tide Tables, are as follows:

High water		Low water	
Time	Height	Time	Height
H. m.	*Ft.*	*H. m.*	*Ft.*
0 50 a. m.	3. 8	7 04 a. m.	0. 4
1 05 p. m.	3. 4	7 13 p. m.	0. 3

The desired time of 6 p. m. is $4^h\ 55^m$ after the "High Water" at 1.05 p. m., this being the nearest preceding tide. The data desired will therefore be found on the chart designated "FIVE HOURS AFTER HIGH WATER AT NEW YORK." This chart indicates that the current in the Hudson River off the Battery is ebbing (setting southward). The number (2.2) shown off the Battery is the velocity of the current at the time of spring tides. To determine the velocity of the current for the particular day, this spring velocity is modified by means of the above table "Factors for correcting velocities." From the predictions for that day the range of the tide is found to be 3.2 feet (mean of two high waters = 3.6, mean of two low waters = 0.4; 3.6 − 0.4 = 3.2). For a range of 3.2 feet, column (B) of the above table gives a factor of 0.6 to be applied to the velocities given on the chart. The approximate velocity of the current is then found to be $2.2 \times 0.6 = 1.3$ knots.

If the time for which information is desired comes about halfway between the times indicated on two successive charts, an average of the data on the chart immediately preceding and following the given time should be used for more precise results. As an example, the current chart for "TWO HOURS AFTER HIGH WATER AT NEW YORK" shows that the current in the Hudson River off the Battery is flooding (setting northward) with a velocity of 0.5 knot. The following chart, "THREE HOURS AFTER HIGH WATER AT NEW YORK" shows that the current at the same place is ebbing (setting southward) with a velocity of 0.4 knot. Halfway between the times given by the two charts—that is, 2½ hours after high water at New York—the current is therefore about slack.

These tidal current charts were prepared by L. P. Disney, chief, section of tide predictions, under the direction of P. C. Whitney, chief, division of tides and currents.

U. S. GOVERNMENT PRINTING OFFICE: 1932

For sale by the Coast and Geodetic Survey and its field agents - - - - - - - - - - - - - Price 25 cents

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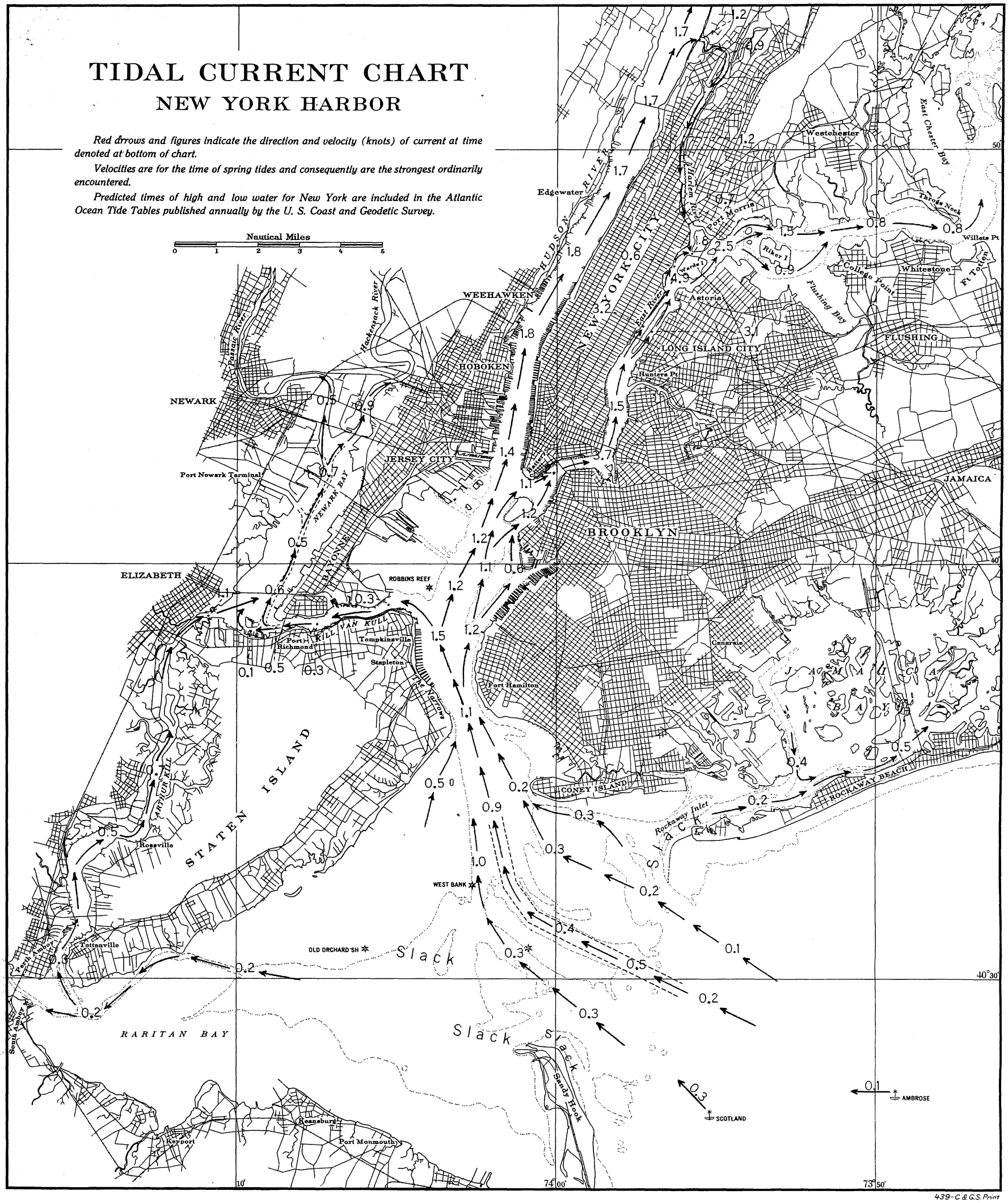
TIDAL CURRENT CHART
NEW YORK HARBOR

Red arrows and figures indicate the direction and velocity (knots) of current at time denoted at bottom of chart.

Velocities are for the time of spring tides and consequently are the strongest ordinarily encountered.

Predicted times of high and low water for New York are included in the Atlantic Ocean Tide Tables published annually by the U. S. Coast and Geodetic Survey.



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HIGH WATER AT NEW YORK

TIDAL CURRENT CHART

NEW YORK HARBOR

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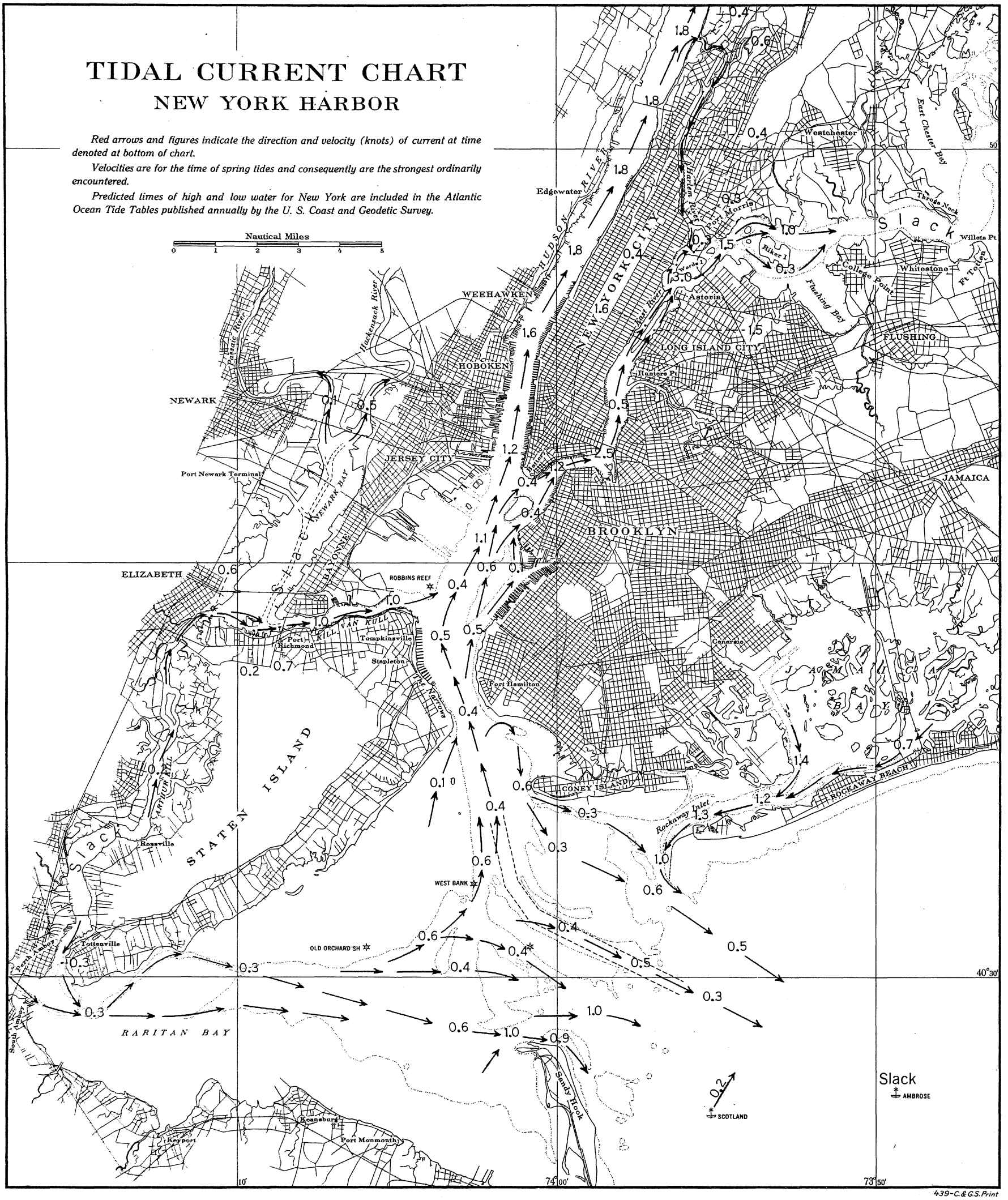

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ONE HOUR AFTER HIGH WATER AT NEW YORK

TIDAL CURRENT CHART

NEW YORK HARBOR

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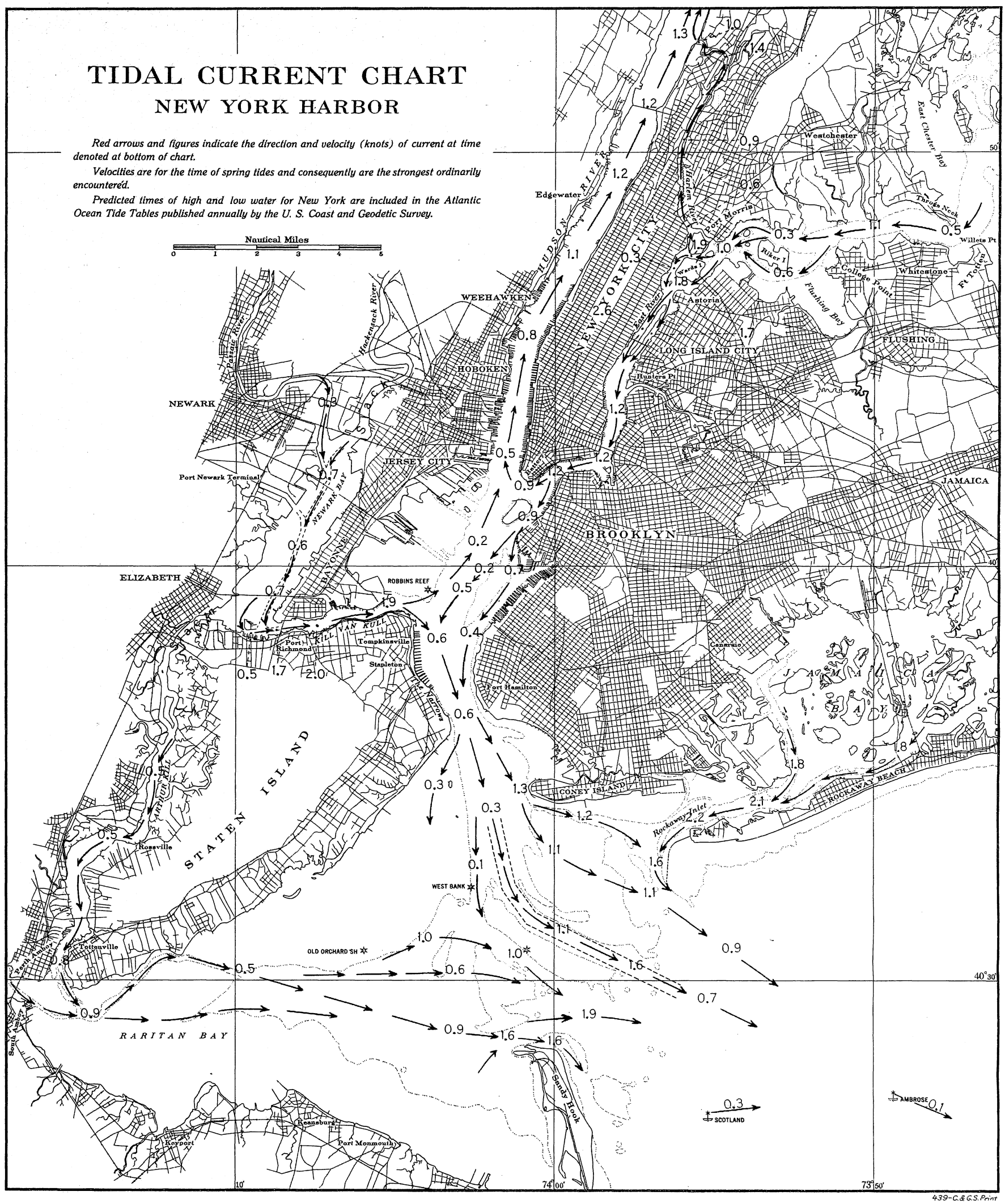

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TWO HOURS AFTER HIGH WATER AT NEW YORK

TIDAL CURRENT CHART
NEW YORK HARBOR

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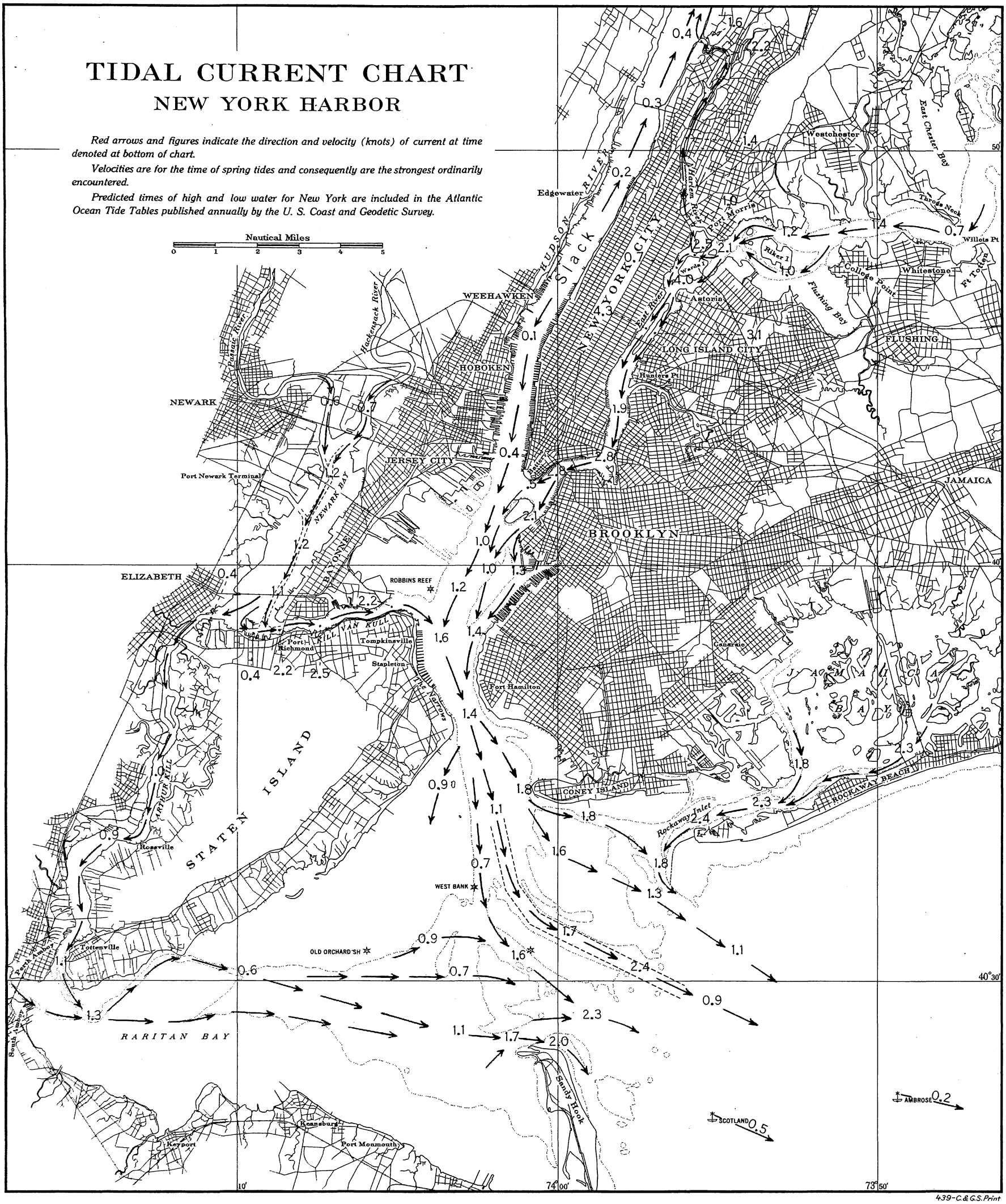

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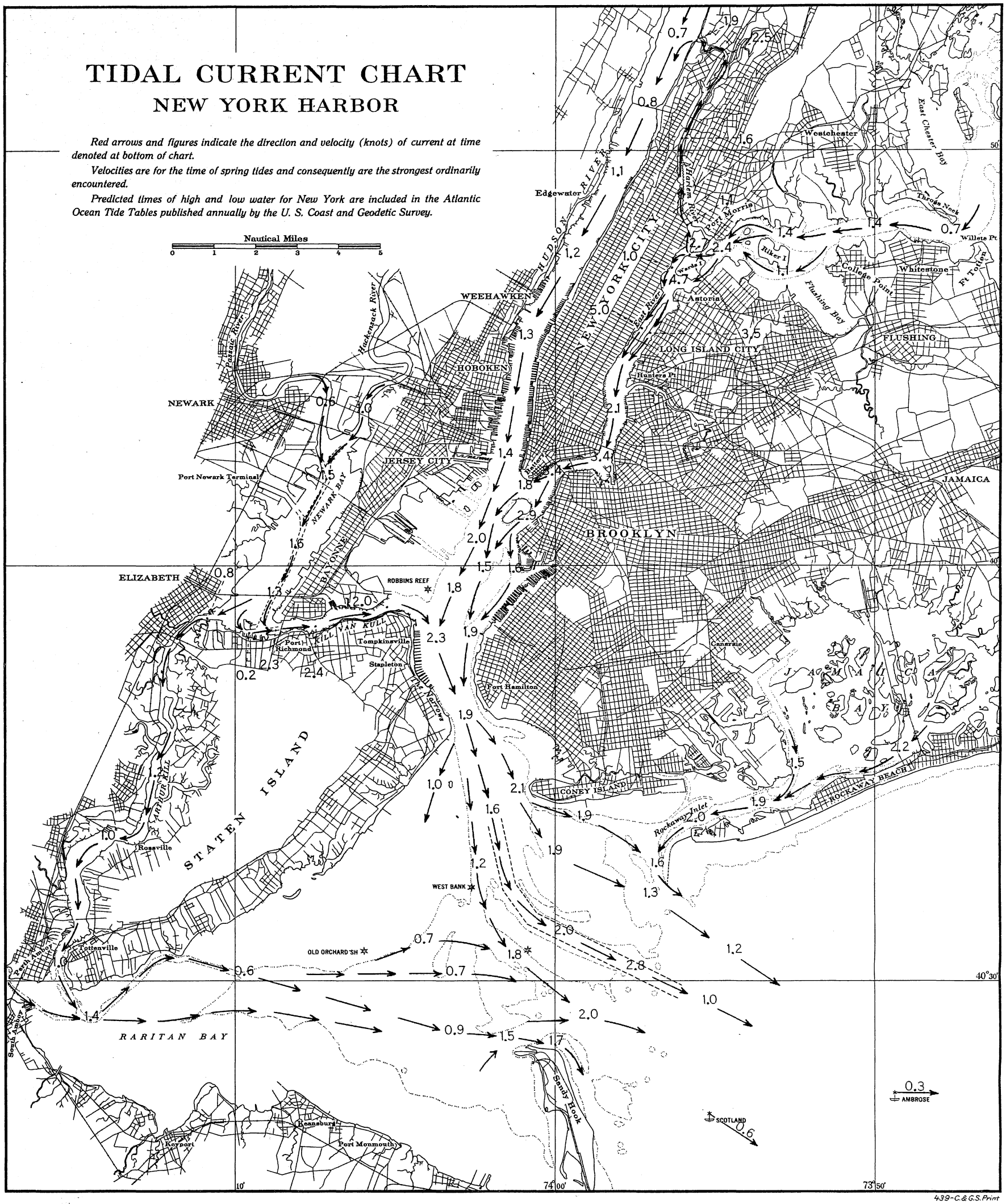

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FOUR HOURS AFTER HIGH WATER AT NEW YORK

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NEW YORK HARBOR

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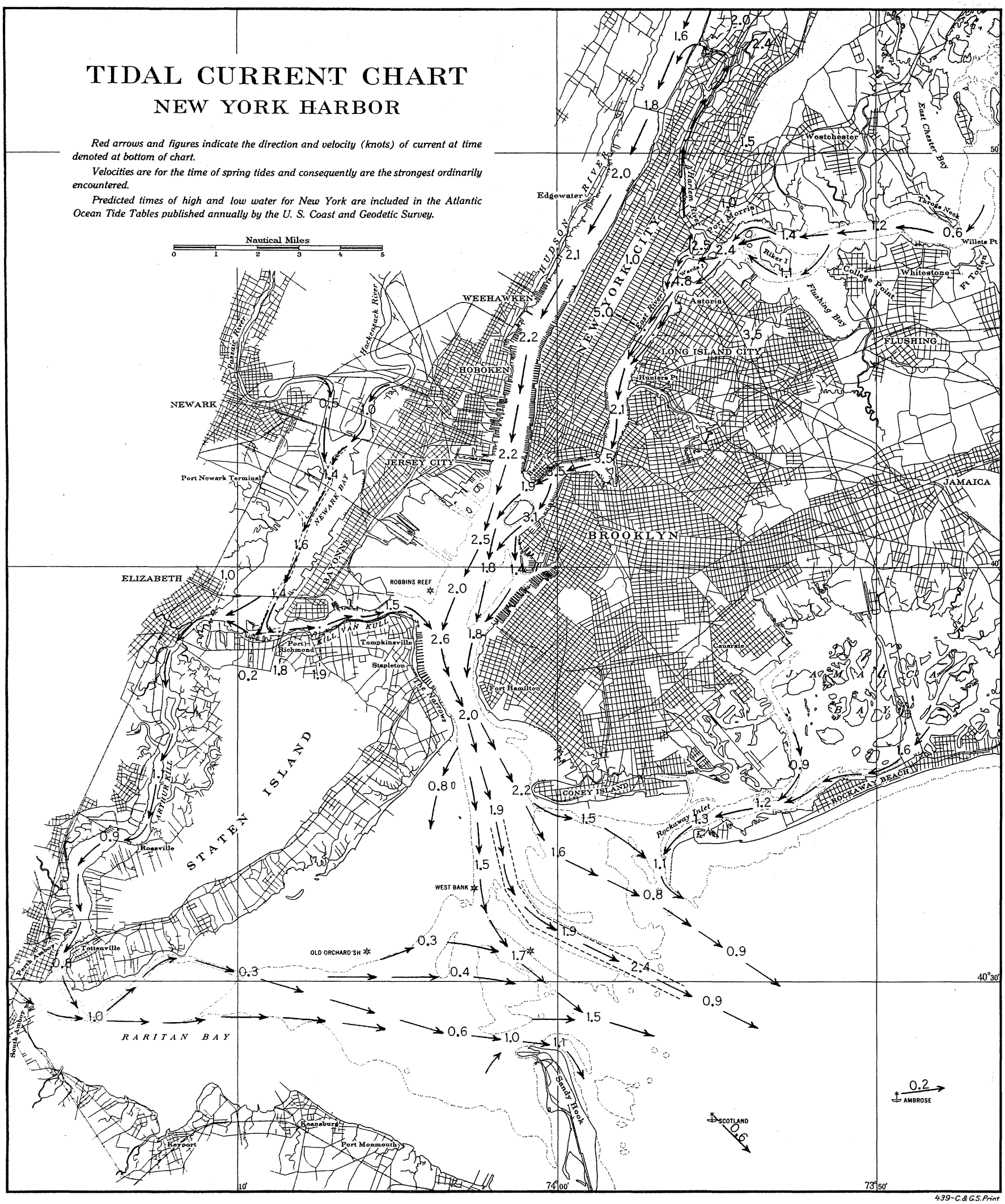

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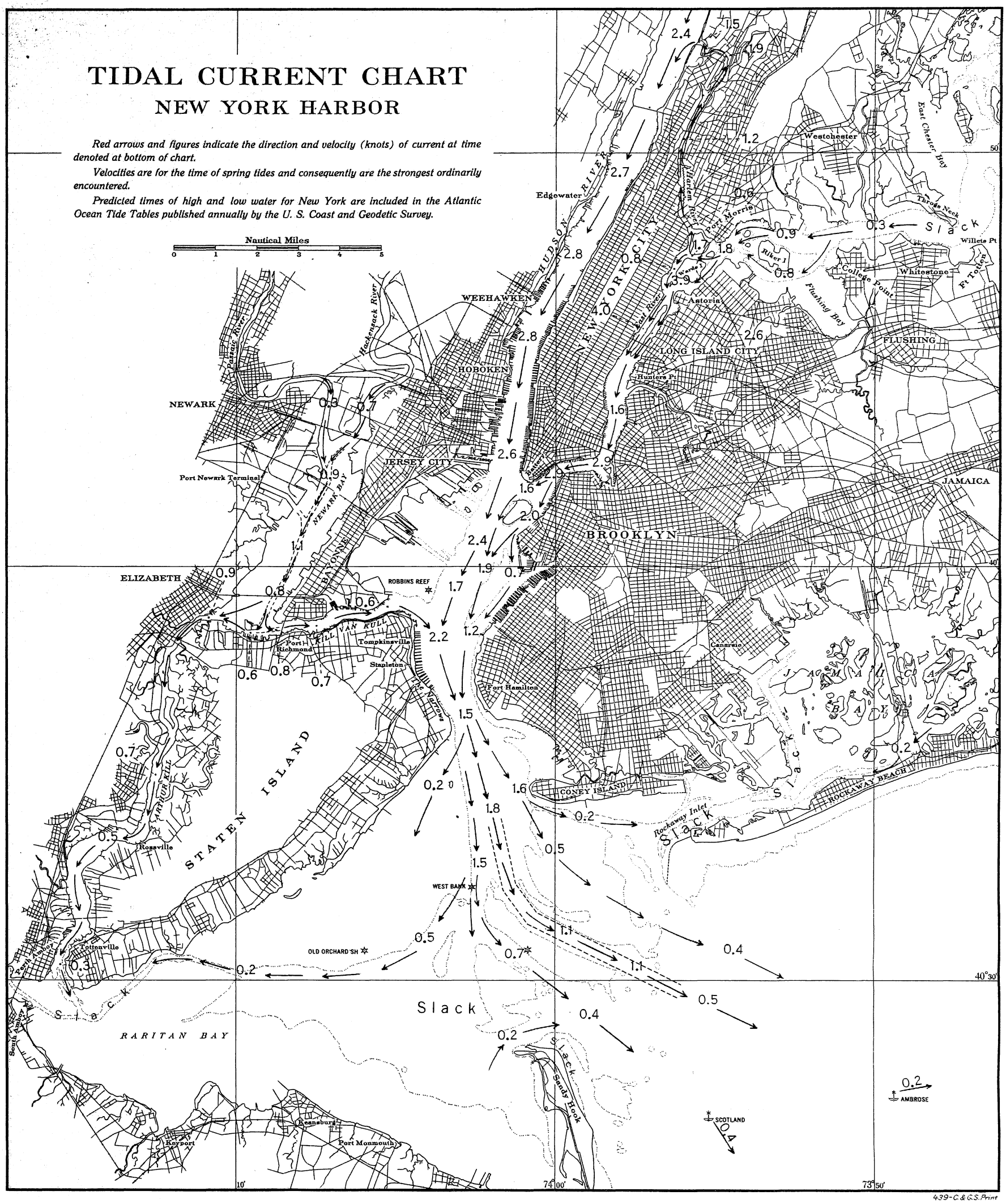

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LOW WATER AT NEW YORK

TIDAL CURRENT CHART

NEW YORK HARBOR

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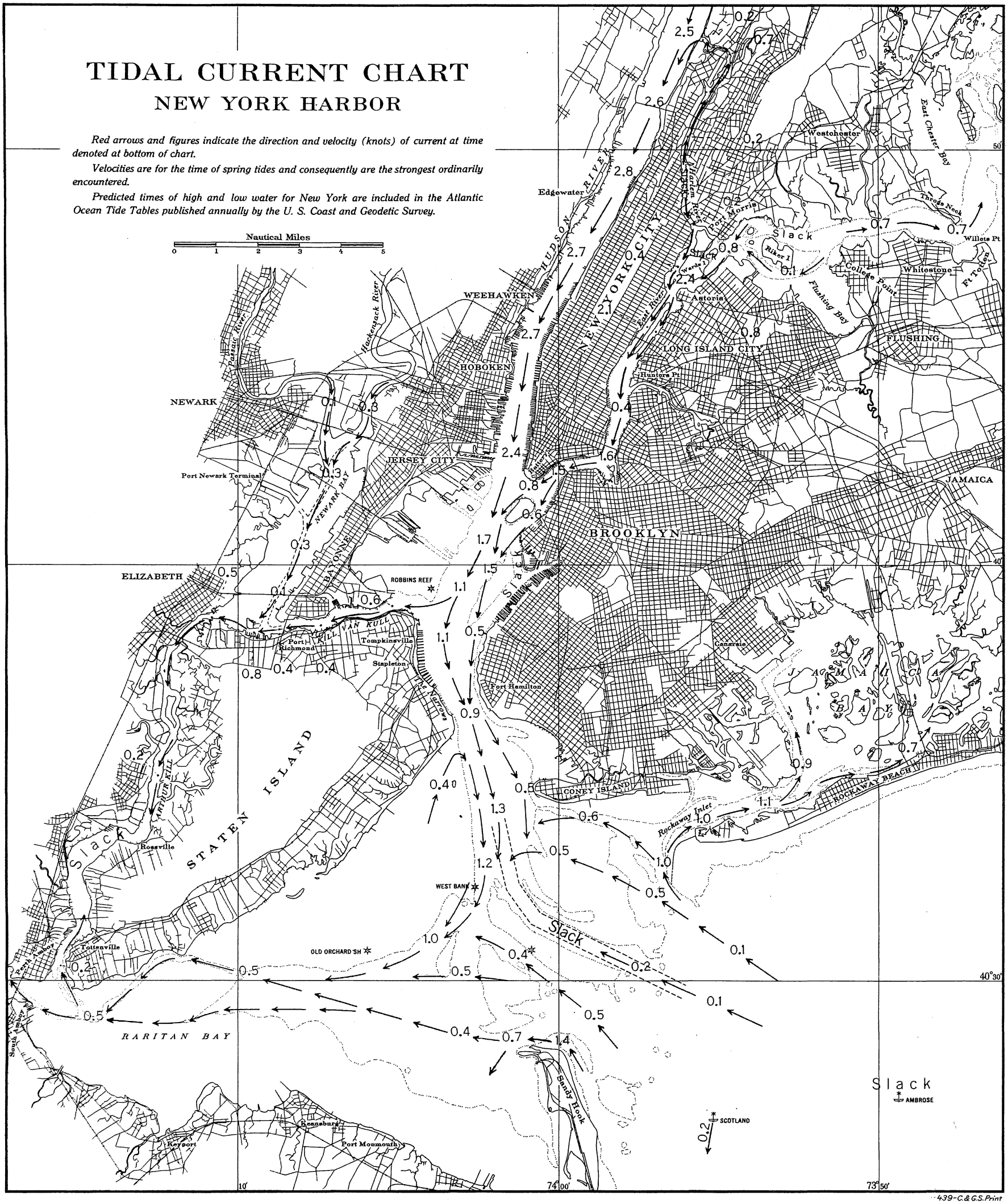

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ONE HOUR AFTER LOW WATER AT NEW YORK

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NEW YORK HARBOR

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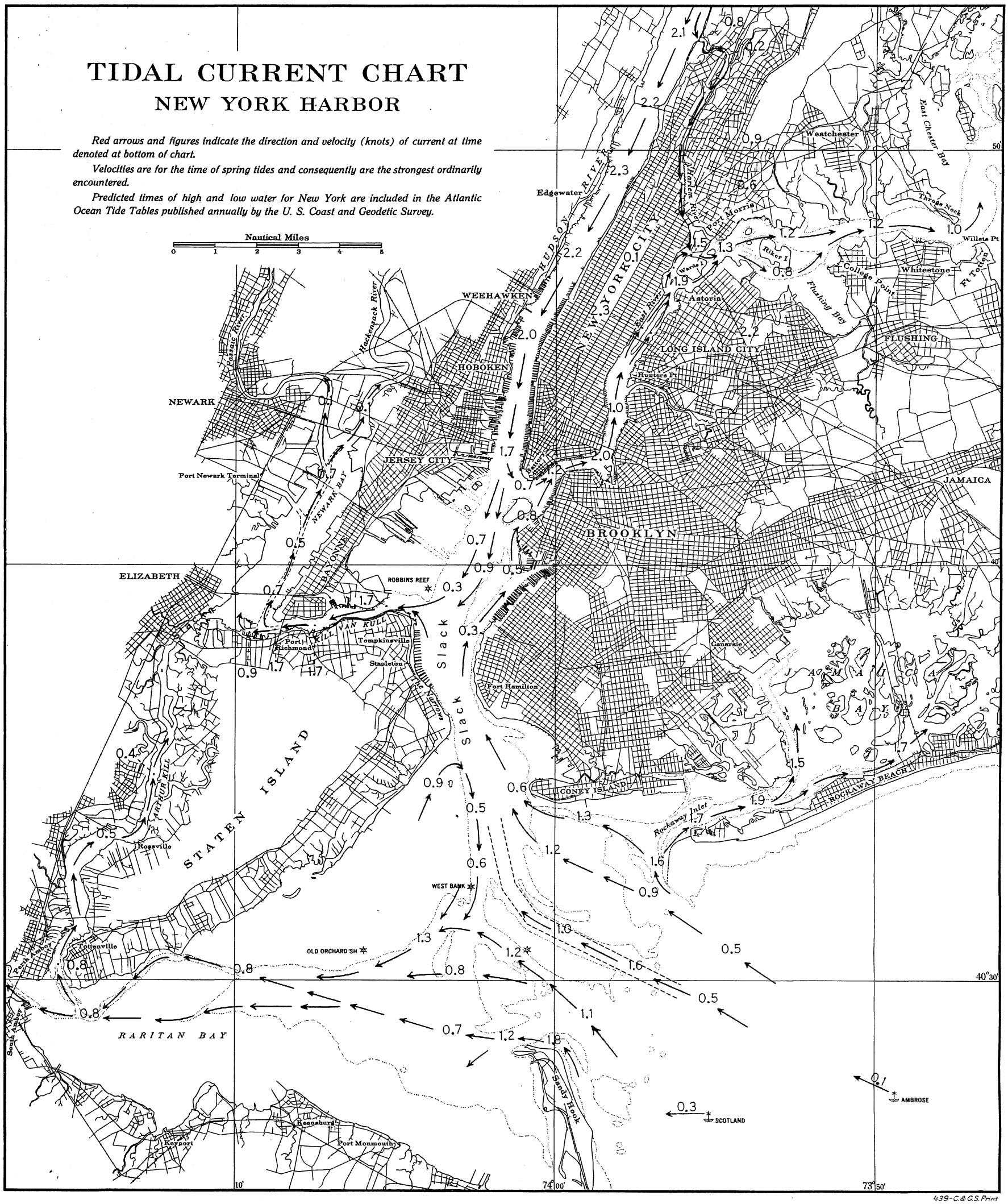

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TWO HOURS AFTER LOW WATER AT NEW YORK

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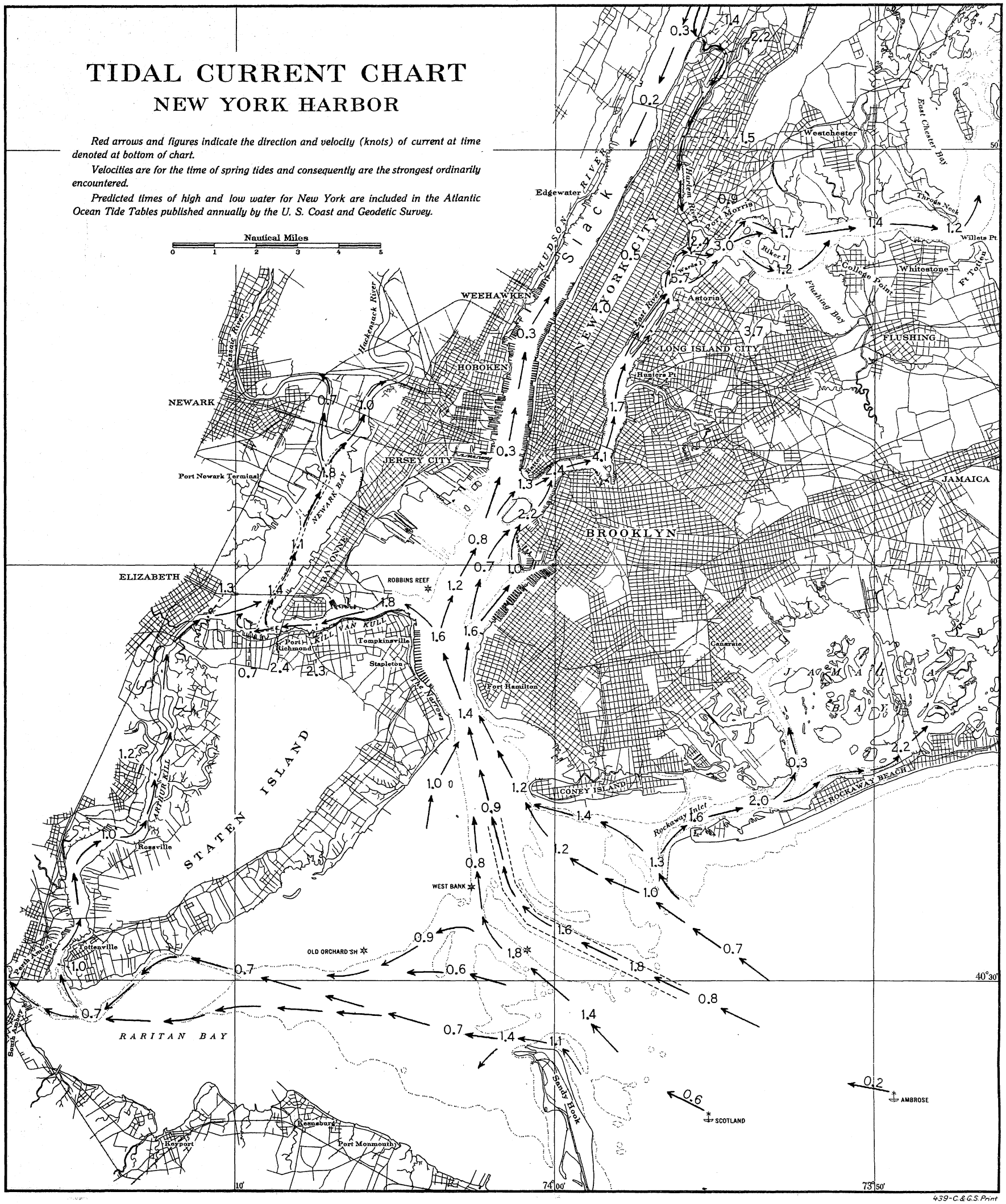

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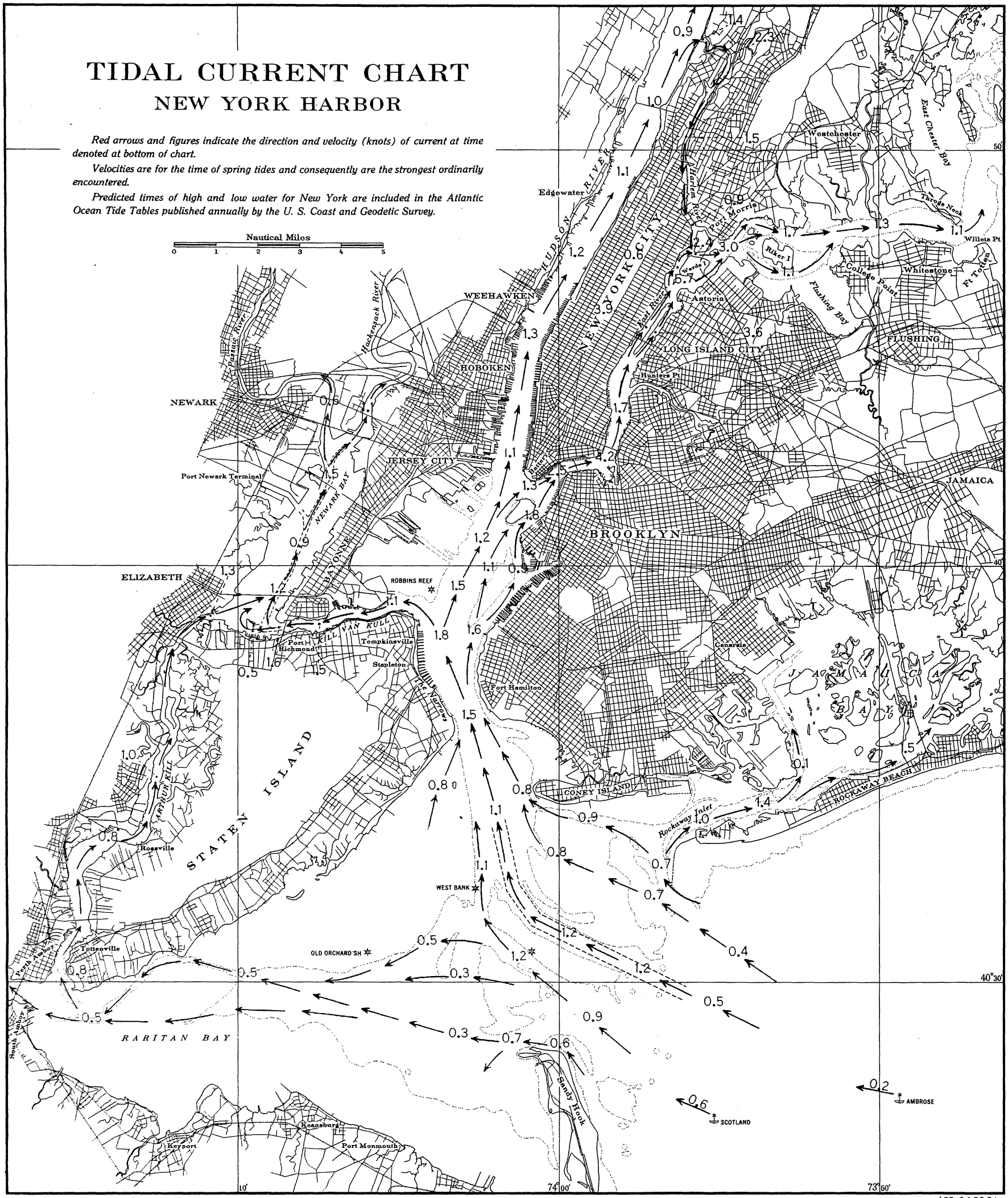

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